

APPENDIX E

CANDIDATE TEST SCENARIOS

E-0 General. This appendix describes the scenarios used to determine to what extent a client or server implements the IAS specification.

E-0.1 Test Approach. The basic test approach is described in paragraph I-4.4 of the body of the test plan. The client and server interfaces are evaluated through the scenarios described in the following sections of this appendix. These scenarios have been developed to address all conformance criteria. In a typical scenario, the server is loaded with control data and then the client executes the scenario steps. At the appropriate times during the scenario, data are captured and recorded. Response data is compared with the control data to determine the results of the scenario.

E-0.2 Scenario Layout. Each scenario is divided into four sections: focus area, preconditions, test conduct, and post-conditions.

a. Focus Area. The focus area lists the areas on which a scenario focuses its attention.

b. Preconditions. Preconditions are specific conditions that must exist before the scenario can be executed. For example, a valid connection must exist between the client and server, or any special client or server configurations.

c. Scenario Conduct. Test conduct describes the actions of the scenario. It is a list of events to be accomplished. Each event has a result which describes the correct outcome of the action. Where verification is needed there is a verification procedure to ensure the results of the action are correct.

d. Post-conditions. The post-conditions describe conditions that exist after the scenario has been completed, and any additional action. For example, cleanup of disseminated image files.

E-1 Scenario 1. Image Dissemination

E-1.1 Focus Area. This scenario primarily covers both the client and server image dissemination. A query is made on the catalog, products are disseminated, the dissemination status are checked, and dissemination is canceled. Lastly, some exceptions are exercised.

E-1.2 Preconditions

- a. Server has been loaded with control images and control image metadata.
- b. Connection between client and server has been opened.

E-1.3 Scenario Conduct

- a. Action: Execute `boolean_query` using TBD as the query criteria and TBD as the requested metadata attributes.

Results: The product references and metadata attributes are returned to the client.

Verification: This can be confirmed by examining returned attributes. (criteria: C-23.2.1, C-23.2.3a, C-24.2.1, C-24.2.3a, C-27.2.1a, C-28.2.1a, C-28.2.1b, C-35.2.1, C-36.2.1)
- b. Action: Set disseminate image products according to Table E-1.1.

Results: The product image products are disseminated to the specified destinations.

Verification: Use image viewer to verify correct image has been distributed in the specified format. (criteria: C-1.2.1, C-1.2.3, C-2.2.1, C-2.2.3, C-23.2.1, C-23.2.3b, C-23.2.3c, C-23.2.3e, C-23.2.3f, C-24.2.1, C-24.2.3b, C-24.2.3c, C-24.2.3e, C-24.2.3f)

Table E-1.1

Product to Disseminate	Product Data Format	Product Compression	Product RRDS	Response Service	Destination(s)
1	NITF	UNC	0	IMMEDIATE	TBD
2	NITF	JPEG8	1	IMMEDIATE	TBD
3	NITF	JPEG12	0,5	IMMEDIATE	TBD
4	TFRD	TFRD43	0	QUEUED	TBD

- c. Action: Disseminate product 1. Prior to completion of dissemination, check same product for completion.

Results: The product dissemination is IN_PROGRESS.

Verification: The client notifies the user that the product dissemination is IN_PROGRESS. (criteria: C-1.2.1c, C-2.2.1c, C-3.2.1a, C-3.2.1e, C-3.2.1j, C-4.2.1a, C-4.2.1e, C-4.2.1j)

- d. Action: Once the dissemination from the previous step is complete, recheck the product for completion.

Results: The product dissemination is completed.

Verification: The client notifies the user that the product dissemination is completed. (criteria: C-1.2.1c, C-2.2.1c, C-3.2.1a, C-3.2.1d, C-3.2.1j, C-4.2.1a, C-4.2.1d, C-4.2.1j)

- e. Action: Select completed product 2 and cancel its dissemination.

Results: The product dissemination is complete and will not be canceled.

Verification: The client notifies the user that the product dissemination is COMPLETED. (criteria: C-1.2.1c, C-2.2.1c, C-5.2.1a, C-5.2.1d, C-6.2.1a, C-6.2.1d)

- f. Action: Disseminate product 3 as IMMEDIATE. Then immediately disseminate product 4 as QUEUED and check its completion status.

- Results: The product dissemination is PENDING until the immediate product is transferred.
- Verification: The client notifies the user that the product dissemination is PENDING. (criteria: C-1.2.1c, C-2.2.1c, C-3.2.1a, C-3.2.1h, C-3.2.1j, C-4.2.1a, C-4.2.1h, C-3.2.1j,)
- g. Action: Prior to completion of the dissemination of product from previous step, cancel the dissemination.
- Results: The product dissemination is canceled.
- Verification: The client notifies the user that the product dissemination is canceled and the CompletionState COMPLETE is returned. (criteria: C-1.2.1c, C-2.2.1c, C-5.2.1a, C-5.2.1d, C-6.2.1a, C-6.2.1d)
- h. Action: Check completion for the product in the previous step.
- Results: The product dissemination is canceled.
- Verification: The client notifies the user that the product dissemination is CANCELED. (criteria: C-1.2.1c, C-2.2.1c, C-3.2.1a, C-3.2.1g, C-3.2.1j, C-4.2.1a, C-4.2.1g, C-4.2.1j)
- i. Action: Use product TBD and edit product reference to become invalid then request dissemination. (This may be setup by putting an invalid product reference in the Catalog Access server.)
- Results: The server raises the exception BadProductReference.
- Verification: The client notifies the user of the bad product reference. (criteria: C-1.2.2a, C-2.2.2a)
- j. Action: Use product 1 and request dissemination with an invalid formatted location specification.
- Results: The server raises the exception BadLocationSpec.

Verification: The client notifies the user of the bad location specification. (criteria: C-1.2.2b, C-2.2.2b)

- k. Action: Use product TBD and request dissemination with a response service not supported by the server.

Results: The server raises the exception ResponseServiceNotAvailable.

Verification: The client notifies the user of the bad response service. (criteria: C-1.2.2c, C-2.2.2c)

- l. Action: Generate dissemination request on product 1. Edit returned RequestId to make it invalid then check completion on that RequestId.

Results: The request is invalid and the server raises the exception BadRequest.

Verification: The client notifies the user of the bad request. (criteria: C-3.2.2a, C-4.2.2a)

- m. Action: Use RequestId from previous step and cancel the request.

Results: The request is invalid and the server raises the exception BadRequest.

Verification: The client notifies the user of the bad request. (criteria: C-5.2.2a, C-6.2.2a)

E-1.4 Post-conditions. Delete files distributed as a result of Table E-1.1, E-1.3c, and if not canceled E-1.3e E-1.3f.

E-2 Scenario 2. Image Product Creation

E-2.1 Focus Area. This scenario primarily covers both the client and server image creation. Products are created in the library, a catalog query and product dissemination are used to validate image creation, the create status is checked, and a create is canceled. Lastly, some exceptions are exercised.

E-2.2 Preconditions

- a. Server has been loaded with control images and control image metadata.
- b. Connection between client and server has been opened.

E-2.3 Scenario Conduct

- a. Action: Create image products according to Table E-2.1.

Results: The image product is created in the library.

Verification: Use following steps. (criteria: C-7.2.1a, C-7.2.1b, C-8.2.1a, C-8.2.1b)

Table E-2.1

File Location/Name	File Format	Creation Attributes
TBD	NITF	None (in file)
TBD	TFRD	None (in file)
TBD	NITF	TBD

- b. Action: Execute boolean_query using TBD as the query criteria and TBD as the requested metadata attributes and get the results.

Results: The new product references and metadata attributes are returned to the client.

Verification: This can be confirmed by examining returned attributes.
(criteria: C-23.2.1, C-23.2.3a, C-24.2.1, C-24.2.3a, C-27.2.1, C-28.2.1, C-35.2.1, C-36.2.1)

- c. Action: Use product references returned by the create method to disseminate new image products to locations TBD.

Results: The product image products are disseminated to the specified destinations.

Verification: Use image viewer to verify correct image has been distributed in the specified format. (criteria: C-1.2.1, C-1.2.3, C-2.2.1, C-2.2.3, C-7.2.1d, C-8.2.1d)

- d. Action: Use RequestId returned by create method from step a to check completion.

Results: The file creation has been completed.

Verification: The client notifies the user that the file creation has been COMPLETED. (criteria: C-7.2.1c, C-8.2.1c, C-3.2.1b, C-3.2.1d, C-3.2.1j, C-4.2.1b, C-4.2.1d, C-4.2.1j)

- e. Action: Use RequestId returned by create method from step a to cancel the create.

Results: The file creation has been completed and is not canceled.

Verification: The client notifies the user that the file creation has been COMPLETED. (criteria: C-7.2.1c, C-8.2.1c, C-3.2.1b, C-3.2.1d, C-4.2.1b, C-4.2.1d)

- f. Action: Create image using file located at TBD. Immediately check completion of create and continue to next step.

Results: The product creation is IN_PROGRESS.

Verification: The client notifies the user that the file creation has been IN_PROGRESS. (criteria: C-7.2.1c, C-8.2.1c, C-3.2.1b, C-3.2.1e, C-3.2.1j, C-4.2.1b, C-4.2.1e, C-4.2.1j)

- g. Action: Immediately cancel creation of file from previous step, then check its completion status.

Results: The product creation is canceled.

Verification: The client notifies the user that the file creation has been canceled and the CompletionState COMPLETE is returned. (criteria: C-7.2.1c, C-8.2.1c, C-3.2.1b, C-3.2.1g, C-3.2.1j, C-4.2.1b, C-4.2.1g, C-4.2.1j, C-5.2.1b, C-5.2.1d, C-6.2.1b, C-6.2.1d)

- h. Action: Request creation of file located at TBD. Use invalid creation attribute "INVALIDATTRIBUTE" = "BAD".

Results: The server raises the exception BadCreationAttributes.

Verification: The client notifies the user of the bad creation attributes. (criteria: C-7.2.2a, C-8.2.2a)

- i. Action: Request creation of file using an invalid formatted location specification.

Results: The server raises the exception BadLocationSpec.

Verification: The client notifies the user of the bad location specification. (criteria: C-7.2.2b, C-8.2.2b)

E-2.4 Post-conditions. Remove files from library as a result of E-2a and if created E-2f, E-2h, E-2i. Delete file(s) distributed as a result of E-2.3c.

E-3 Scenario 3. Region Retrieval

E-3.1 Focus Area. This scenario primarily covers both the client and server retrieval of region(s). A query is made on the catalog and a region of data is retrieved. Lastly, some exceptions are exercised.

E-3.2 Preconditions

- a. Server has been loaded with control images and control image metadata.
- b. Connection between client and server has been opened.

E-3.3 Scenario Conduct

- a. Action: Execute `boolean_query` using TBD as the query criteria and TBD as the requested metadata attributes and get the results.

Results: The product references and metadata attributes are returned to the client.

Verification: This can be confirmed by examining returned attributes. (criteria: C-23.2.1, C-23.2.3a, C-24.2.1, C-24.2.3a, C-27.2.1, C-28.2.1, C-35.2.1, C-36.2.1)
- b. Action: Select image product TBD that is whose `ArrayProduct` parameter is `TRUE`.

Results: The `get_parameters` method is called on the image product to determine if it is an array product.

Verification: Client indicates image product(s) is an array product. (criteria: C-21.2.1, C-21.2.3o, C-22.2.1a, C-22.2.1b(13))
- c. Action: Take appropriate steps to open array for array product.

Results: The server sets up for array requests.

Verification: The following steps are completed without `ArrayNotOpen` exception. (criteria: C-9.2.1, C-10.2.1)

- d. Action: Retrieve the region(s) according to Table E-3.1.
- Results: The actual region data and region specification is returned to the client.
- Verification: Client displays the region.
 (criteria: C-13.2.1, C-14.2.1, C-13.2.3a, C-13.2.3b, C-13.2.3c, C-14.2.3a, C-14.2.3b, C-14.2.3c, C-23.2.1, C-23.2.3d, C-24.2.1, C-24.2.3d)

Table E-3.1

Array Product	Center (x/y)	Size (x/y)	Resolution	Product Compression
1 (gray)	TBD	TBD	0	UNC
1(gray)	TBD	TBD	2	UNC
2(color)	TBD	TBD	0	UNC
2(color)	TBD	TBD	2	UNC

- e. Action: Retrieve multiple region(s) according to Table E-3.2.
- Results: The actual region data and region specification is returned to the client.
- Verification: Client displays the region(s).
 (criteria: C-15.2.1, C-16.2.1, C-15.2.3a, C-15.2.3b, C-16.2.3a, C-16.2.3b, C-23.2.1, C-23.2.3e, C-23.2.3f, C-24.2.1, C-24.2.3d, C-24.2.3f)

Table E-3.2

Array Product	Centers (x/y)	Sizes (x/y)	RRDS	Product Compression
1	TBD	TBD	0	UNC
	TBD	TBD	0	
	TBD	TBD	0	
2	TBD	TBD	0	UNC
	TBD	TBD	2	

- f. Action: Select image product TBD that is whose ArrayProduct parameter is FALSE and take appropriate steps to open the array.
- Results: The server raises the exception BadProductReference since the product is not arrayable.
- Verification: The client notifies the user of the bad product reference. (criteria: C-9.2.2a, C-10.2.2a)
- g. Action: Select image product TBD whose ArrayProduct parameter is FALSE and retrieve region TBD.
- Results: The server raises the exception BadProductReference since the product was not an array product.
- Verification: The client notifies the user of the bad product reference. (criteria: C-13.2.2a, C-14.2.2a)
- h. Action: Select image product TBD that is whose ArrayProduct parameter is FALSE and retrieve multiple region TBD, TBD....
- Results: The server raises the exception BadProductReference since the product was not an array product.
- Verification: The client notifies the user of the bad product reference. (criteria: C-15.2.2a, C-16.2.2a)
- i. Action: Select image product TBD that is whose ArrayProduct parameter is TRUE but is offline (e.g. on tape storage) and take appropriate steps to retrieve a region.
- Results: The server raises the exception ProductUnavailable.
- Verification: The client notifies the user the product is not available. (criteria: C-9.2.2b, C-10.2.2b)
- j. Action: Select image array product TBD and request a region with region specification outside of image.

- Results: The server raises the exception BadRegionSpec.
- Verification: The client notifies the user of the bad region specification. (criteria: C-13.2.1b, C-13.2.2b, C-14.2.2b, C-14.2.1b)
- k. Action: Select image array product TBD and request multiple regions with region specifications outside of image.
- Results: The server raises the exception BadRegionSpec.
- Verification: The client notifies the user of the bad region specification. (criteria: C-15.2.2b, C-16.2.2b)
- l. Action: Take appropriate steps to close array for array product TBD.
- Results: The server closes the array.
- Verification: No exceptions are raised. (criteria: C-11.2.1, C-12.2.1)
- m. Action: Select image array product TBD and request a region.
- Results: The server raises the exception ArrayNotOpen.
- Verification: The client notifies the user the product was not opened for array processing. (criteria: C-13.2.2f, C-14.2.2d)
- n. Action: Select image array product TBD and request multiple regions TBD, TBD....
- Results: The server raises the exception ArrayNotOpen.
- Verification: The client notifies the user the product was not opened for array processing. (criteria: C-15.2.2f, C-16.2.2d)
- o. Action: Select array image product TBD and close the array.
- Results: The server raises the exception ArrayNotOpen.
- Verification: The client notifies the user the product was not opened for array processing. (criteria: C-13.2.2f, C-14.2.2d)

p. Action: Select non-array image product TBD and close the array.

Results: The server raises the exception BadProductReference.

Verification: The client notifies the user the product was invalid.
(criteria: C-11.2.2b, C-12.2.2b)

E-3.4 Post-conditions. None.

E-4 Scenario 4. Connection Establishment

E-4.1 Focus Area. This scenario primarily covers the opening and closing of connections between the client and server. Attempts are made to open and/or close the connection and the attempt to execute an operation validates whether the connection is open.

E-4.2 Preconditions

a. Server has been loaded with control images and control image metadata.

E-4.3 Scenario Conduct

a. Action: Connect to the Catalog Access server. Execute `boolean_query` using TBD as the query criteria and TBD as the requested metadata attributes.

Results: The session has not been opened and the exception `BAD_INV_ORDER` is raised.

Verification: The client notifies the user of the exception. (criteria: C-17.2.1b, C-18.2.1b, C-23.2.1, C-23.2.3a, C-24.2.1, C-24.2.3a, C-27.2.2f, C-27.2.1, C-28.2.1)

b. Action: Attempt to close the connection.

Results: The connection has not been opened and the exception `NoConnectionEstablished` is raised.

Verification: The client notifies the user of the exception. (criteria: C-17.2.1b, C-18.2.1b, C-19.2.2a, C-20.2.2a)

c. Action: Open the connection using a valid user and password.

Results: The connection is established.

Verification: No exceptions are thrown. (criteria: C-17.2.1a, C-18.2.1a)

- d. Action: Execute `boolean_query` using TBD as the query criteria and TBD as the requested metadata attributes and get the results.
- Results: The query returns the appropriate results.
- Verification: The client displays the results of the query. (criteria: C-23.2.1, C-23.2.3a, C-24.2.1, C-24.2.3a, C-27.2.1, C-28.2.1)
- e. Action: Open the connection using a valid user and password.
- Results: The connection was previously established and the exception `AlreadyConnected` is thrown.
- Verification: The client notifies the user of the exception. (criteria: C-17.2.2a, C-18.2.2a)
- f. Action: Attempt to close the connection.
- Results: The connection closes and no exceptions are raised.
- Verification: See following step. (criteria: C-19.2.1a, C-20.2.1a)
- g. Action: Execute `boolean_query` using TBD as the query criteria and TBD as the requested metadata attributes.
- Results: The connection has closed and the exception `BAD_INV_ORDER` is raised.
- Verification: The client notifies the user of the exception. (criteria: C-19.2.1b, C-20.2.1b, C-27.2.2f, C-27.2.1a, C-28.2.1a, C-28.2.1b, C-35.2.1a, C-35.2.1b, C-35.2.1d, C-35.2.1e, C-36.2.1a, C-36.2.1b, C-36.2.1c, C-36.2.1d, C-36.2.1f, C-36.2.1g)
- h. Action: Open the connection using an invalid user and password.
- Results: The open criteria are invalid and the exception `BadOpenCriteria` is thrown.

- Verification: The client notifies the user of the exception. (criteria: C-17.2.2b, C-18.2.2b)
- i. Action: Open the connection using a user and password with insufficient permissions.
- Results: The open criteria are invalid and the exception NO_PERMISSION is thrown.
- Verification: The client notifies the user of the exception. (criteria: C-17.2.2c, C-18.2.2c)
- j. Action: Connect to the Image Access server. Create product located at TBD.
- Results: The session has not been opened and the exception BAD_INV_ORDER is raised.
- Verification: The client notifies the user of the exception. (criteria: C-17.2.1b, C-18.2.1b, C-7.2.2c, C-8.2.2c)
- k. Action: Attempt to close the connection.
- Results: The connection has not been opened and the exception NoConnectionEstablished is raised.
- Verification: The client notifies the user of the exception. (criteria: C-17.2.1b, C-18.2.1b, C-19.2.2a, C-20.2.2a)
- l. Action: Open the connection using a valid user and password.
- Results: The connection is established.
- Verification: No exceptions are thrown. (criteria: C-17.2.1a, C-18.2.1a)
- m. Action: Create product located at TBD.
- Results: The product is created in the library.
- Verification: No exceptions are thrown. (criteria: C-7.2.1a, C-8.2.1a)

- n. Action: Open the connection using a valid user and password.
- Results: The connection was previously established and the exception AlreadyConnected is thrown.
- Verification: The client notifies the user of the exception. (criteria: C-17.2.2a, C-18.2.2a)
- o. Action: Attempt to close the connection.
- Results: The connection closes and no exceptions are raised.
- Verification: See following step. (criteria: C-19.2.1a, C-20.2.1a)
- p. Action: Create product located at TBD.
- Results: The connection has closed and the exception BAD_INV_ORDER is raised.
- Verification: The client notifies the user of the exception. (criteria: C-19.2.1b, C-20.2.1b, , C-7.2.2c, C-8.2.2c)
- q. Action: Open the connection using an invalid user and password.
- Results: The open criteria are invalid and the exception BadOpenCriteria is thrown.
- Verification: The client notifies the user of the exception. (criteria: C-17.2.2b, C-18.2.2b)
- r. Action: Open the connection using a user and password with insufficient permissions.
- Results: The open criteria are invalid and the exception NO_PERMISSION is thrown.
- Verification: The client notifies the user of the exception. (criteria: C-17.2.2c, C-18.2.2c)

E-4.4 Post-conditions. Product is located in the library as a result of E-4.4m.

E-5 Scenario 5. Parameter Interface Data Access

E-5.1 Focus Area. This scenario primarily covers the accessing of information contained in the parameters interface.

E-5.2 Preconditions

- a. Server has been loaded with control images and control image metadata.
- b. No parameters have previously been set.

E-5.3 Scenario Conduct

Table E-5.1 Catalog Access Parameters

Parameter Name	Type	Acceptable Range/Value	Default Value	Reset table	Criteria
ParameterNames	NameValueList	-Names are the items in the Parameter Name column -Values are the in the Resettable column	N/A	False	C-21.2.3q
ResultAttributes	NameList	See AvailableAttributes	None	True	C-21.2.3a C-23.2.3a C-24.2.3a
GeographicDatum	String	"WGS84"	WGS84	True	C-21.2.3b C-23.2.3b C-24.2.3b
AvailableAttributes	NameList	See IVTP 4.1.2.1.1.3.1.1	N/A	False	C-21.2.3k
QueryableAttributes	NameValueList	-Names, see IVTP 4.1.2.1.1.3.1.1 -Values, Operators comma separated	N/A	False	C-21.2.3l
MaxPolygonVertices	long	> = 3	N/A	False	C-21.2.3m

BrowseImageReturned	Boolean		N/A	True	C-21.2.3r C-23.2.3i C-24.2.3i
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- a. Action: Client connects to the Catalog server. Repeat steps b-c for each row in table E-5.1.
- b. Action: Client calls get_parameter for parameter name
- Results: The default value, if applicable, is returned as shown in the table.
- Verification: No exceptions are thrown. (criteria: C-21.2.1, C-22.2.1)
- c. Action: If the parameter is resettable, the client calls set_parameter for each acceptable value. Then calls get_parameters for the parameter name.
- Results: The returned parameter value is the same as the set parameter value.
- Verification: TBD. (criteria: C-21.2.1, C-22.2.1, C-23.2.1, C-24.2.1)
- d. Action: Client calls get_parameter for invalid parameter name "Not_a_parameter"
- Results: There is no parameter by this name and the exception BadName is thrown.
- Verification: The client notifies the user of the exception. (criteria: C-21.2.2a, C-22.2.2a)
- e. Action: Client calls set_parameters for invalid parameter name "Not_a_parameter".
- Results: There is no parameter by this name and the exception BadName is thrown.
- Verification: The client notifies the user of the exception. (criteria: C-23.2.2a, C-24.2.2a)

f. Action: Client calls set_parameters for parameter GeographicDatum to invalid value "Bad_datum".

Results: The value for this parameter is invalid and the exception BadValue is thrown.

Verification: The client notifies the user of the exception. (criteria: C-23.2.2b, C-24.2.2b)

g. Action: Client calls set_parameters for parameter ParameterNames with value to "Read-only".

Results: This parameter is not resettable and the exception CannotSet is thrown.

Verification: The client notifies the user of the exception. (criteria: C-23.2.2c, C-24.2.2c)

Table E-5.2 Image Access Parameters

Parameter Name	Type	Acceptable Range/Value	Default Value	Resettable	Criteria
ParameterNames	NameValueList	-Names are the items in the Parameter Name column -Values are the in the Resettable column	N/A	False	C-21.2.3q
GeographicDatum	String	"WGS84"	"WGS84"	True	C-21.2.3b C-23.2.3b C-24.2.3b
ProductRRDS	sequence < unsigned long >	0-7		True	C-21.2.3c C-23.2.3c C-24.2.3c
RegionParameters	Region Parameters	horiz. size > 0 vert. size > 0 resolution 0-7		True	C-21.2.3d C-23.2.3d C-24.2.3d

ProductCompression	string	"UNC" "JPEG8" "JPEG12" "TFRD43"		True	C-21.2.3e C-23.2.3e C-24.2.3e
ProductDataFormat	string	"NITF20" "TFRD"		True	C-21.2.3f C-23.2.3f C-24.2.3f
HorizMotionRate	long			True	C-21.2.3g C-23.2.3g C-24.2.3g
VertMotionRate	long			True	C-21.2.3h C-23.2.3h C-24.2.3h

- h. Action: Client connects to Image Access server. Repeat steps i-j for each row in table E-5.2.
- i. Action: Client calls get_parameter for parameter name
- Results: The default value, if applicable is returned as shown in the table.
- Verification: No exceptions are thrown. (criteria: C-21.2.1, C-22.2.1)
- j. Action: If the parameter is resettable, the client calls set_parameter for each acceptable value. Then calls get_parameters for the parameter name.
- Results: The returned parameter value is the same as the set parameter value.
- Verification: TBD. (criteria: C-21.2.1, C-22.2.1, C-23.2.1, C-24.2.1)
- k. Action: Client calls get_parameter for invalid parameter name "Not_a_parameter".
- Results: There is no parameter by this name and the exception BadName is thrown.

Verification: The client notifies the user of the exception. (criteria: C-21.2.2a, C-22.2.2a)

- l. Action: Client calls set_parameters for invalid parameter name "Not_a_parameter".

Results: There is no parameter by this name and the exception BadName is thrown.

Verification: The client notifies the user of the exception. (criteria: C-23.2.2a, C-24.2.2a)

- m. Action: Client calls set_parameters for parameter GeographicDatum to invalid value "Bad_datum".

Results: The value for this parameter is invalid and the exception BadValue is thrown.

Verification: The client notifies the user of the exception. (criteria: C-23.2.2b, C-24.2.2b)

- n. Action: Client calls set_parameters for parameter ParameterNames with value to "Read-only".

Results: This parameter is not settable and the exception CannotSet is thrown.

Verification: The client notifies the user of the exception. (criteria: C-23.2.2c, C-24.2.2c)

Table E-5.3 ImageProduct Parameters

Parameter Name	Type	Acceptable Range/Value	Default Value	Resettable	Criteria
ParameterNames	NameValueList	-Names are the items in the Parameter Name column -Values are the in the Resettable column	N/A	False	C-21.2.3q

ReferenceAttributes	NameValueList	- "NROWS" (N8) - "NCOLS" (N8)	N/A	False	C-21.2.3n
ArrayProduct	Boolean	True/False	N/A	False	C-21.2.3o
LibraryReference	IA			False	C-21.2.3p

- o. Action: Select product TBD from table query in step a. Set ContextInfo to valid user USERID and PASSWORD.

Results: None

Verification: N/A.

- p. Action: For each row in table E-5.2 the client calls get_parameters for the parameter name.

Results: The returned parameter value is as shown in the table

Verification: TBD. (criteria: C-21.2.1, C-22.2.1)

- q. Action: Client calls get_parameter for invalid parameter name "Not_a_parameter".

Results: There is no parameter by this name and the exception BadName is thrown.

Verification: The client notifies the user of the exception. (criteria: C-21.2.2a, C-22.2.2a)

- r. Action: Client calls set_parameters for invalid parameter name "Not_a_parameter".

Results: There is no parameter by this name and the exception BadName is thrown.

Verification: The client notifies the user of the exception. (criteria: C-23.2.2a, C-24.2.2a)

- | | |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| s. | <p>Action: Client calls set_parameters for parameter ParameterNames with value to "Read-only".</p> <p>Results: This parameter is not settable and the exception CannotSet is thrown.</p> <p>Verification: The client notifies the user of the exception. (criteria: C-23.2.2c, C-24.2.2c)</p> |
| t. | <p>Action: Select product TBD from table query in step a. Set ContextInfo to invalid user USERID and PASSWORD and get parameter ParameterNames</p> <p>Results: Exception BAD_INV_ORDER is thrown</p> <p>Verification: The client notifies the user of the exception. (criteria: C-21.2.2b, C-22.2.2b)</p> |

E-5.4 Post-conditions. Resettable parameters are set to last values tested.

E-6 Scenario 6. Subimage Retrieval

E-6.1 Focus Area. This scenario primarily covers both the client and server get_subimage. A query is made on the catalog, products sub-images are requested, the dissemination status are checked, and canceled.

E-6.2 Preconditions

- a. Server has been loaded with control images and control image metadata.
- b. Connection between client and server has been opened.

E-6.3 Scenario Conduct

- a. **Action:** Execute boolean_query using TBD as the query criteria and TBD as the requested metadata attributes and get the results.

Results: The product references and metadata attributes are returned to the client.

Verification: This can be confirmed by examining returned attributes. (criteria: C-17.2.1b, C-18.2.1b, C-23.2.1, C-23.2.3a, C-24.2.1, C-24.2.3a, C-27.2.2f, C-27.2.1, C-28.2.1, C-35.2.1, C-36.2.1)
- b. **Action:** Set disseminate image products according to Table E-6.1. Use GeographicDatum "WGS84".

Results: The product sub-image is sent to the specified destinations.

Verification: Use image viewer to verify correct image has been distributed in the specified format. (criteria: C-25.2.1, C-26.2.1, C-25.2.3, C-26.2.3, C-23.2.1, C-23.2.3a, C-23.2.3b, C-23.2.3c, C-23.2.3e, C-23.2.3f, C-24.2.1, C-24.2.3a, C-24.2.3b, C-24.2.3c, C-24.2.3e, C-24.2.3f)

Table E-6.1

Product	Product Data Format	Product Compression	RRDS	Upper Left Lower Right	Destination Location
1	NITF	UNC	0	TBD	
2	NITF	UNC	2	TBD	
2	NITF	UNC	0,2	TBD	
3	NITF	JPEG8	0	TBD	
4	NITF	JPEG12	0	TBD	
5	TFRD	TFRD43	0	TBD	

- c. Action: Check the completion status of product 1 from Table E-6.1.

Results: The product transfer is completed.

Verification: The client notifies the user that the product transfer is COMPLETED. (criteria: C-25.2.1e, C-26.2.1d, C-3.2.1c, C-3.2.1d, C-4.2.1c, C-4.2.1d)

- d. Action: Select product 1 from Table E-6.1 and get_subimage based on table information. Cancel the transfer prior to completion of the transfer.

Results: The product sub-image dissemination is canceled.

Verification: The client notifies the user that the product dissemination is canceled and the CompletionState COMPLETE is returned. (criteria: C-25.2.1e, C-26.2.1d, C-5.2.1c, C-5.2.1d, C-6.2.1c, C-6.2.1d)

- e. Action: Select product 1 from Table E-6.1 and get_subimage using invalid coordinates: longitude -181, latitude -91.

- Results: The server throws the exception BadCoord.
- Verification: The client notifies the user that the coordinates were bad. (criteria: C-25.2.2a, C-26.2.2a)
- f. Action: Select product 1 from Table E-6.1 and get_subimage using coordinates TBD that are not covered by the image.
- Results: The server throws the exception BadCoord.
- Verification: The client notifies the user that the coordinates were bad. (criteria: C-25.2.2a, C-26.2.2a)
- g. Action: Select product TBD and edit product reference to be invalid then get_subimage. (This may be setup by putting an invalid product reference in the Catalog Access server.)
- Results: The server throws the exception BadProductReference.
- Verification: The client notifies the user that the product reference was bad. (criteria: C-25.2.2c, C-26.2.2b)
- h. Action: Select product 1 from Table E-6.1 and get_subimage using a destination location that is invalidly formatted.
- Results: The server throws the exception BadLocationSpec.
- Verification: The client notifies the user that the destination location was bad. (criteria: C-25.2.2d, C-26.2.2c)
- i. Action: Select product 1 from Table E-6.1 and get_subimage using an unsupported file format.
- Results: The server throws the exception BadRegionData.
- Verification: The client notifies the user that the region data was bad. (criteria: C-25.2.2f, C-26.2.2e)
- j. Action: Select product 1 from Table E-6.1 and get_subimage using an unsupported compression.

Results: The server throws the exception BadRegionData.

Verification: The client notifies the user that the region data was bad.
(criteria: C-25.2.2g, C-26.2.2e)

E-6.4 Post-conditions. Delete files distributed as a result of Table E-6.1

E-7 Scenario 7. Boolean Query

E-7.1 Focus Area. This scenario covers both client and server processing of Boolean queries upon the Catalog Access Facility. A client query is made on the catalog server and a list of matches are returned. The client then makes selections from the list to obtain additional information on the items matched. Lastly, some exceptions are exercised.

E-7.2 Preconditions

a. Server has been loaded with control images and control image metadata that will provide matches for the queries listed in Table E-7.1.

b. Connection between client and Catalog Access server has been opened.

E-7.3 Scenario Conduct. A minimum of 8 queries, in varying degrees of complexity and types, will be performed in this scenario. Table E-7.1 lists all such queries.

Table E-7.1 - Boolean Queries

Boolean Queries		
Query Type	Number of Results Retrieved	Results Freed
This cell contains the Query Expression		
This cell contain a list of the ResultAttributes		
1. Relation Expression - String	25% 25% 25%	Yes
This query expression is TBD (ensure > 3 hits returned)		
The ResultAttributes are: TBD		
2. Relation Expression - %String	1	Yes
This query expression is TBD (use wildcard)		
The ResultAttributes are: TBD		
3. Relation Expression - String%	None	No

This query expression is TBD (use wildcard)		
The ResultAttributes are: TBD		
4. Relation Expression - %String%	None	No
This query expression is TBD (use wildcards)		
The ResultAttributes are: TBD		
5. Relation Expression - Str%ing	N/A	N/A
This query expression is TBD (use wildcard)		
The ResultAttributes are: TBD		
6. Relation Expression - Numeric	100%	Yes
This query expression is TBD		
The ResultAttributes are: TBD		
7. Sum Expression	25% 25% 25%	Yes
This query expression is TBD (ensure > 3 hits returned)		
The ResultAttributes are: TBD		

- a. Action: Execute `boolean_query 1` from Table E-7.1 Set `BrowseImageReturned` to `TRUE`.

Results: A `QueryId` token is returned to the client for subsequent retrieval of query results information.

Verification: No exceptions are raised. (C-23.2.1, C-23.2.3a, C-23.2.3i, C-27.2.1.a, C-27.2.3i, C-28.2.1.a, C-28.2.3i)
- b. Action: Execute `get_results` for 25% of the hits (using the `QueryId` returned in step a, above) three times.

Results: For each `get_results` iteration, `QueryResults` are returned (for 25% of total hits), which contains an individual `QueryHit` for each of the query hits. The browse image is returned for each query hit returned.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-28.2.1.b; C-35.2.1.a; C-35.2.1.b; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f)

- c. Action: Execute free_results on them, using the QueryId from step a. Immediately follow this action with get_results using the same QueryId.

Results: All remaining hits on the QueryId are eliminated and inaccessible.

Verification: The elimination of the remaining hits can be confirmed by the BadQueryId exception. (C-35.2.2a, C-36.2.2a, C-37.2.1.a; C-37.2.1.b; C-38.2.1.a)

- d. Action: Execute boolean_query 2 from Table E-7.1. Set BrowseImageReturned to FALSE.

Results: A QueryId is returned to the client.

Verification: No exceptions are raised. (C-23.2.3i, C-24.2.3i, C-27.2.1.a; C-28.2.1.a)

- e. Action: Execute get_results for 1 of the hits (using the QueryId returned in step d, above). Set BrowseImageReturned to TRUE.

Results: QueryResults are returned, which contains the QueryHit for the hit selected above. All returned attributes are in character form. The attributes in the QueryHit and QueryResults are in the same order. The browse images are not returned.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-23.2.3i, C-24.2.3i, C-28.2.1.b; C-35.2.1.a; C-35.2.1.b; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f)

- f. Action: Execute `free_results` on any hits remaining on QueryId from step d.
- Results: All remaining hits on the QueryId are eliminated and inaccessible.
- Verification: The elimination of the remaining hits can be confirmed by the `BadQueryId` exception. (C-35.2.2a, C-36.2.2a, C-37.2.1.a; C-37.2.1.b; C-38.2.1.a)
- g. Action: Execute `boolean_query 3` from Table E-7.1. Set `BrowseImageReturned` to `FALSE`.
- Results: A QueryId is returned to the client.
- Verification: No exceptions are raised. (C-23.2.3i, C-24.2.3i, C-27.2.1.a; C-28.2.1.a)
- h. Action: Execute `boolean_query 4` from Table E-7.1.
- Results: A QueryId is returned to the client.
- Verification: No exceptions are raised. (C-27.2.1.a; C-28.2.1.a)
- i. Action: Execute `get_results` for 1 hit from the QueryId returned in step g, (query 3 above).
- Results: QueryResults are returned, which contains the QueryHit for the hit selected above. All returned attributes are in character form. The attributes in the QueryHit and QueryResults are in the same order.
- Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-28.2.1.b; C-35.2.1.a; C-35.2.1.b; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f)
- j. Action: Execute `boolean_query 5` from Table E-7.1.
- Results: BadQuerySyntax exception thrown by server and gracefully handled by the client.

Verification: This can be confirmed by the receipt of the exception by the client. (C-27.2.2.a; C-28.2.2.a)

k. Action: Execute boolean_query 6 from Table E-7.1.

Results: A QueryId is returned to the client.

Verification: No exceptions are raised. (C-27.2.1.a; C-28.2.1.a)

l. Action: Execute get_results for all hits from the QueryId returned in step k, above.

Results: QueryResults are returned, which contains a QueryHitList for each of the hits selected above. The last get_results returns less QueryHits than requested in the number_hits_to_return. All returned attributes are in character form. The attributes in each QueryHit and QueryResults are in the same order.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-28.2.1.b; C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-35.2.1.g, C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g, C-36.2.1.h)

m. Action: Execute boolean_query 7 from Table E-7.1.

Results: A QueryId is returned to the client.

Verification: No exceptions are raised. C-27.2.1.a; C-28.2.1.a)

n. Action: Execute get_results for 25% of the hits (using the QueryId returned in step m, above) three times.

Results: For each get_results iteration, QueryResults are returned (for 25% of total hits), which contains an individual QueryHit for each of the query hits.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein.

(C-28.2.1.b; C-35.2.1.a; C-35.2.1.b; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c;)

- o. Action: Execute `free_results` using the `QueryId` from step m. Immediately follow this action with `get_results` using the same `QueryId`.
- Results: All remaining hits on the `QueryId` are eliminated and inaccessible.
- Verification: The elimination of the remaining hits can be confirmed by the `BadQueryId` exception. (C-37.2.1.a; C-37.2.1.b; C-38.2.1.a)
- p. Action: Execute `boolean_query` 8 from Table E-7.1.
- Results: A `QueryId` is returned to the client.
- Verification: No exceptions are raised. (C-27.2.1.a; C-28.2.1.a)
- q. Action: Execute `get_results` for 1 of the hits (using the `QueryId` returned in step p, above).
- Results: `QueryResults` are returned, which contains the `QueryHit` for the hit selected above. All returned attributes are in character form. The attributes in the `QueryHit` and `QueryResults` are in the same order.
- Verification: This can be confirmed by examining returned `QueryHitList` for information and values contained therein. (C-23.2.1, C-23.2.3i, C-24.2.1, C-24.2.3i, C-28.2.1.b; C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g, C-36.2.3a)
- r. Action: Note the `QueryIds` from steps g, h, and p, that were not freed and execute a client close.
- Results: Server closes connection from client.
- Verification: No exceptions are raised. (C-19.2.1a, C-20.2.1a)
- s. Action: Client executes `open`.

Results: Client provides valid open_criteria containing user identity and password. Server opens connection with from client upon receipt of valid user identity and password.

Verification: No exceptions are thrown. (C-17.2.1.a; C-18.2.1.a)

- t. Action: Execute get_results for each of the QueryIds noted in step r, above.

Results: Exception thrown by server and gracefully handled by the client as no hits are accessible from previous session QueryIds.

Verification: This can be confirmed by the return of BadQueryId exception on each attempt. (C-35.2.2.a; C-36.2.2.a)

- u. Action: Execute free_results for each of the QueryIds noted in step r, above.

Results: Cannot free results from previous session QueryIds (invalid QueryId).

Verification: This can be confirmed by the return of BadQueryId exception. (C-37.2.2.a; C-38.2.2.a)

- v. Action: Execute boolean_query 9 from Table E-7.1.

Results: The server throws the exception BadQuerySyntax.

Verification: The client notifies the user of the bad query syntax. (C-27.2.2.b; C-28.2.1.a)

- w. Action: Execute a client close.

Results: Server closes connection from client.

Verification: No exceptions are raised. (C-19.2.1.a; C-20.2.1.a)

E-7.4 Post-conditions. None.

E-8 Scenario 8. Polygonal Query

E-8.1 Focus Area. This scenario covers both client and server processing of polygonal queries upon the Catalog Access Facility. A client query is made on the catalog server and a list of matches are returned. The client then makes selections from the list to obtain additional information on the items matched. Lastly, some exceptions are exercised.

E-8.2 Preconditions

a. Server has been loaded with control images and control image metadata that will provide matches for the queries listed in Table E-8.1.

b. Connection between client and Catalog Access server has been opened.

E-8.3 Scenario Conduct. A minimum of 6 queries, in varying degrees of complexity, will be performed in this scenario. Table E-8.1 lists all such queries.

Table E-8.1 - Polygonal Queries

Polygonal Queries		
Query Number	Number of Results Retrieved	Results Freed
This cell contains the Boolean Expression		
This cell contains the Polygonal Coordinates		
This cell contain a list of the ResultAttributes		
Query 1	25% 25% 25%	Yes
Boolean Expression is TBD		
Polygonal Coordinates are TBD (ensure > 3 hits returned)		
The ResultAttributes are: TBD		
Query 2	1	No
Boolean Expression is TBD		

Polygonal Coordinates are TBD (ensure > 3 hits returned)		
The ResultAttributes are: TBD		
Query 3	100%	Yes
Boolean Expression is TBD		
Polygonal Coordinates are TBD		
The ResultAttributes are: TBD		
Query 4	N/A	N/A
Boolean Expression is TBD		
Polygonal Coordinates are TBD (BadCoord)		
The ResultAttributes are: TBD		
Query 5	N/A	N/A
Boolean Expression is TBD		
Polygonal Coordinates are TBD (TooFewVertices)		
The ResultAttributes are: TBD		
Query 6	N/A	N/A
Boolean Expression is TBD		
Polygonal Coordinates are TBD (TooManyVertices)		
The ResultAttributes are: TBD		

- a. Action: Execute `polygonal_query 1` from Table E-8.1. Set `BrowseImageReturned` to `FALSE`.

Results: A `QueryId` token containing data that meets the criteria of both the Boolean and polygonal expressions is returned to the client for subsequent retrieval of query results information. The polygon is a single enclosed area with vertices ordered in a counter-clockwise direction.

Verification: No exceptions are raised. (C-23.2.1, C-23.2.3a, C-23.2.3i C-29.2.1.a; C-29.2.1.b; C-29.2.1.c; C-30.2.1.a; C-30.2.1.b; C-30.2.1.c; C-30.2.1.d; C-30.2.1.e).

- b. Action: Execute `get_results` for 25% of the hits (using the QueryId returned in step a, above) three times, to include the browse image for each hit.

Results: For each `get_results` iteration, QueryResults are returned (for 25% of total hits), which contains an individual QueryHit for each of the query hits. The returned attributes are in character form and those in the QueryHit correspond with the names in the QueryResults. No browse images are returned.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g)

- c. Action: Execute `free_results` using the QueryId from step a. Immediately follow this action with `get_results` using the same QueryId.

Results: All remaining hits on the QueryId are eliminated and inaccessible.

Verification: The elimination of the remaining hits can be confirmed by the BadQueryId exception. (C-35.2.2a, C-36.2.2a, C-37.2.1.a; C-37.2.1.b; C-38.2.1.a)

- d. Action: Execute `polygonal_query 2` from Table E-8.1. Set `BrowseImageReturned` to TRUE.

Results: A QueryId containing data that meets the criteria of both the Boolean and polygonal expressions is returned to the client for subsequent retrieval of query results information. The polygon is a single enclosed area with vertices ordered in a counter-clockwise direction.

Verification: No exceptions are raised. (C-23.2.3i, C-24.2.3i, C-29.2.1.a; C-29.2.1.b; C-29.2.1.c; C-30.2.1.a; C-30.2.1.b; C-30.2.1.c; C-30.2.1.d; C-30.2.1.e).

- e. Action: Execute `get_results` for 1 of the hits (using the `QueryId` returned in step d, above).

Results: `QueryResults` are returned, which contains the `QueryHit` for the hit selected above. All returned attributes are in character form. The attributes in the `QueryHit` and `QueryResults` are in the same order. A browse image for each query hit is returned.

Verification: This can be confirmed by examining returned `QueryHitList` for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g)

- f. Action: Execute `polygonal_query 3` from Table E-8.1. Set `BrowseImageReturned` to `FALSE`

Results: A `QueryId` containing data that meets the criteria of both the Boolean and polygonal expressions is returned to the client for subsequent retrieval of query results information. The polygon is a single enclosed area with vertices ordered in a counter-clockwise direction.

Verification: No exceptions are raised. (C-29.2.1.a; C-29.2.1.b; C-29.2.1.c; C-30.2.1.a; C-30.2.1.b; C-30.2.1.c; C-30.2.1.d; C-30.2.1.e).

- g. Action: Execute `get_results` for all of the hits (using the `QueryId` returned in step f, above).

Results: `QueryResults` are returned, which contains the `QueryHit` for the hit selected above. All returned attributes are in character form. The attributes in the `QueryHit` and `QueryResults` are in the same order. No browse images are returned.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g)

h. Action: Execute polygonal_query 4 from Table E-8.1.

Results: A BadCoord exception is thrown by the server and gracefully handled by the client.

Verification: This can be confirmed by the receipt and handling of the exception by the client. (C-29.2.2.g; C-30.2.2f)

i. Action: Execute polygonal_query 5 from Table E-8.1.

Results: A TooFewVertices exception is thrown by the server and gracefully handled by the client.

Verification: This can be confirmed by the receipt and handling of the exception by the client. (C-29.2.2.h; C-30.2.2g)

j. Action: Execute polygonal_query 6 from Table E-8.1

Results: A TooManyVertices exception is thrown by the server and gracefully handled by the client.

Verification: This can be confirmed by the receipt and handling of the exception by the client. (C-29.2.2.i; C-30.2.2h)

k. Action: Execute get_results for 1 of the hits (using the QueryId returned in step d, above).

Results: QueryResults are returned, which contains the QueryHit for the hit selected above. All returned attributes are in character form. The attributes in the QueryHit and QueryResults are in the same order.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-

35.2.1.e; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g, C-36.2.3a)

l. Action: Note the QueryId from step d that was not freed and execute a client close.

Results: Server closes connection from client.

Verification: No exceptions are raised. (C-19.2.1a, C-20.2.1a)

m. Action: Client executes open.

Results: Client provides valid open_criteria containing user identity and password. Server opens connection with from client upon receipt of valid user identity and password.

Verification: No exceptions thrown. (Criteria: C-17.2.1a, C-18.2.1a)

n. Action: Execute get_results for all remaining hits noted on QueryId step l.

Results: Exception thrown by server and gracefully handled by the client as no hits are accessible from previous session's QueryId.

Verification: This can be confirmed by the return of BadQueryId exception. (C-35.2.2.a; C-36.2.2.a)

o. Action: Execute a client close.

Results: Server closes connection from client.

Verification: No exceptions are raised. (C-19.2.1.a; C-20.2.1.a)

E-8.4 Post-conditions. None.

E-9 Scenario 9. Elliptical Query

E-9.1 Focus Area. This scenario covers both client and server processing of elliptical queries upon the Catalog Access Facility. A client query is made on the catalog server and a list of matches are returned. The client then makes selections from the list to obtain additional information on the items matched. Lastly, some exceptions are exercised.

E-9.2 Preconditions

a. Server has been loaded with control images and control image metadata that will provide matches for the queries listed in Table E-9.1.

b. Connection between client and Catalog Access server has been opened.

E-9.3 Scenario Conduct. A minimum of 6 queries, in varying degrees of complexity, will be performed in this scenario. Table E-9.1 lists all such queries.

Table E-9.1 - Elliptical Queries

Elliptical Queries		
Query Number	Number of Results Retrieved	Results Freed
This cell contains the Boolean Expression		
This cell contains the Elliptical Definition		
This cell contain a list of the ResultAttributes		
Query 1	100%	No
Boolean Expression is TBD		
Elliptical Definition is TBD		
The ResultAttributes are: TBD		
Query 2	25% 25% 25%	No
Boolean Expression is TBD		

Elliptical Definition is TBD (ensure > 3 hits returned)		
The ResultAttributes are: TBD		
Query 3	1	Yes
Boolean Expression is TBD		
Elliptical Definition is TBD (ensure > 3 hits returned) (Circle query)		
The ResultAttributes are: TBD		
Query 4	N/A	N/A
Boolean Expression is TBD		
Elliptical Definition is TBD (BadEllipse)		
The ResultAttributes are: TBD		
Query5	N/A	N/A
Boolean Expression is TBD (BadAttribute)		
Elliptical Definition is TBD		
The ResultAttributes are: TBD		
Query 6	N/A	N/A
Boolean Expression is TBD (BadQueryValue)		
Elliptical Definition is TBD		
The ResultAttributes are: TBD		

- a. Action: Execute elliptical_query 1 from Table E-9.1 Set BrowseImageReturned to TRUE.

Results: A QueryId token containing data that meets the criteria of both the Boolean and elliptical expressions is returned to the client for subsequent retrieval of query results information. The azimuth is measurable clockwise from the north of the major axis in degrees and the major and minor axes are measurable in meters.

Verification: No exceptions are raised. (C-23.2.1, C-23.2.3a, C-23.2.3i C-31.2.1.a; C-31.2.1.b; C-31.2.1.c; C-32.2.1.a; C-32.2.1.b; C-32.2.1.c, C-32.2.1d).

- b. Action: Execute `get_results` for all of the hits (using the QueryId returned in step a, above).

Results: QueryResults are returned, which contains the QueryHit for the hit selected above. All returned attributes are in character form. The attributes in the QueryHit and QueryResults are in the same order.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g)

- c. Action: Execute `elliptical_query 2` from Table E-9.1. Set `BrowseImageReturned` to FALSE.

Results: A QueryId containing data that meets the criteria of both the Boolean and elliptical expressions is returned to the client for subsequent retrieval of query results information. From the data returned, the azimuth is measurable clockwise from the north of the major axis in degrees and the major and minor axes are measurable in meters.

Verification: No exceptions are raised. (C-23.2.1, C-23.3.i, C-24.2.1, C-24.2.3i, C-31.2.1.a; C-31.2.1.b; C-31.2.1.c; C-32.2.1.a; C-32.2.1.b; C-32.2.1.c, C-32.2.1d).

- d. Action: Execute `get_results` for 25% of the hits (using the QueryId returned in step c, above) three times.

Results: For each `get_results` iteration, QueryResults are returned (for 25% of total hits), which contains an individual QueryHit for each of the query hits. The returned attributes are in character form and those in the QueryHit correspond with the names in the QueryResults. No browse images are returned.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g)

e. Action: Execute elliptical_query 3 from Table E-9.1.

Results: A QueryId containing data that meets the criteria of both the Boolean and elliptical expressions is returned to the client for subsequent retrieval of query results information. A circle query resulted from the major and minor axes being equal.

Verification: No exceptions are raised. (C-31.2.1.a; C-31.2.1.c, C-31.2.1.d; C-32.2.1.a; C-32.2.1.b; C-32.2.1.d, C-32.2.1.e).

f. Action: Execute get_results for 1 of the hits (using the QueryId returned in step e, above).

Results: QueryResults are returned, which contains the QueryHit for the hit selected above. All returned attributes are in character form. The attributes in the QueryHit and QueryResults are in the same order.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g, C-36.2.3a)

g. Action: Execute free_results using the QueryId from step e. Immediately follow this action with get_results using the same QueryId.

Results: All remaining hits on the QueryId are eliminated and inaccessible.

Verification: The elimination of the remaining hits can be confirmed by the BadQueryId exception. (C-37.2.1.a; C-37.2.1.b; C-38.2.1.a)

h. Action: Execute elliptical_query 4 from Table E-9.1.

Results: A BadEllipse exception is thrown by the server and gracefully handled by the client.

Verification: This can be confirmed by the receipt and handling of the exception by the client. (C-31.2.2.h; C-32.2.2g)

i. Action: Execute elliptical_query 5 from Table E-9.1.

Results: A BadAttribute exception is thrown by the server and gracefully handled by the client.

Verification: This can be confirmed by the receipt and handling of the exception by the client. (C-31.2.2.c; C-32.2.2b)

j. Action: Execute elliptical_query 6 from Table E-9.1.

Results: A BadQueryValue exception is thrown by the server and gracefully handled by the client.

Verification: This can be confirmed by the receipt and handling of the exception by the client. (C-31.2.2.d; C-32.2.2d)

k. Action: Execute get_results for 1 of the hits (using the QueryId returned in step e, above).

Results: QueryResults are returned, which contains the QueryHit for the hit selected above. All returned attributes are in character form. The attributes in the QueryHit and QueryResults are in the same order.

Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g)

- l. Action: Note the QueryId from step e that was not freed and execute a client close.
- Results: Server closes connection from client.
- Verification: No exceptions are raised. (C-19.2.1.a; C-20.2.1.a)
- m. Action: Client executes open.
- Results: Client provides valid open_criteria containing user identity and password. Server opens connection with from client upon receipt of valid user identity and password.
- Verification: No exceptions are raised. (Criteria: C-17.2.1a, C-18.2.1a)
- n. Action: Execute get_results for all remaining hits noted on QueryId step e, above.
- Results: Exception thrown by server and gracefully handled by the client as no hits are accessible from previous session's QueryId.
- Verification: This can be confirmed by the return of BadQueryId exception. (C-35.2.2.a; C-36.2.2.a)
- o. Action: Execute a client close.
- Results: Server closes connection from client.
- Verification: No exceptions are raised. (C-19.2.1.a; C-20.2.1.a)

E-9.4 Post-conditions. None.

E-10 Scenario 10. Point Query

E-10.1 Focus Area. This scenario covers both client and server processing of point queries upon the Catalog Access Facility. A client query is made on the catalog server and a list of matches are returned. The client then makes selections from the list to obtain additional information on the items matched. Lastly, some exceptions are exercised.

E-10.2 Preconditions

a. Server has been loaded with control images and control image metadata that will provide matches for the queries listed in Table E-10.1.

b. Connection between client and Catalog Access server has been opened.

E-10.3 Scenario Conduct. A minimum of 6 queries, in varying degrees of complexity, will be performed in this scenario. Table E-10.1 lists all such queries.

Table E-10.1 - Point Queries

Point Queries		
Query Number	Number of Results Retrieved	Results Freed
This cell contains the Boolean Expression		
This cell contains the Point Coordinate		
This cell contain a list of the ResultAttributes		
Query 1	1	No
Boolean Expression is TBD		
Point Coordinate is TBD (ensure > 3 hits returned)		
The ResultAttributes are: TBD		
Query 2	100%	No
Boolean Expression is TBD		

Point Coordinate is TBD		
The ResultAttributes are: TBD		
Query 3	25% 25% 25%	No
Boolean Expression is TBD		
Point Coordinate is TBD (ensure > 3 hits returned)		
The ResultAttributes are: TBD		
Query 4	N/A	N/A
Boolean Expression is TBD (BadQuerySyntax, illegal syntax)		
Point Coordinate is TBD		
The ResultAttributes are: TBD		
Query5	N/A	N/A
Boolean Expression is TBD (BadQuerySyntax, invalid operator)		
Point Coordinate is TBD		
The ResultAttributes are: TBD		
Query 6	N/A	N/A
Boolean Expression is TBD		
Point Coordinate is TBD (BadCoord)		
The ResultAttributes are: TBD		

- a. Action: Execute point_query 1 from Table E-10.1 Set BrowseImageReturned to TRUE.

Results: A QueryId token containing data that meets the criteria of both the Boolean and point expressions is returned to the client for subsequent retrieval of query results information.

Verification: No exceptions are raised. (C-23.2.1, C-23.2.3a, C-23.2.3i, C-33.2.1.a; C-34.2.1.a; C-34.2.1.b).

- b. Action: Note the QueryId and execute get_results for 1 of the hits (using the QueryId returned in step a, above).
- Results: QueryResults are returned, which contain the QueryHit for the hit selected above. All returned attributes are in character form. The attributes in the QueryHit and QueryResults are in the same order. A browse image is returned for each query hit.
- Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f)
- c. Action: Execute point_query 2 from Table E-10.1. Set BrowseImageReturned to FALSE.
- Results: A QueryId containing data that meets the criteria of both the Boolean and point expressions are returned to the client for subsequent retrieval of query results information.
- Verification: No exceptions are raised. (C-23.2.1, C-23.2.3i, C-24.2.1, C-24.2.3i, C-33.2.1.a; C-34.2.1.a; C-34.2.1.b).
- d. Action: Execute get_results for all of the hits (using the QueryId returned in step c, above).
- Results: QueryResults are returned which contain an individual QueryHit for each of the query hits. The returned attributes are in character form and those in the QueryHit correspond with the names in the QueryResults. No browse images are returned.
- Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g, C-36.2.3a)

- e. Action: Execute point_query 3 from Table E-10.1.
- Results: A QueryId containing data that meets the criteria of both the Boolean and point expressions is returned to the client for subsequent retrieval of query results information.
- Verification: No exceptions are raised. (C-33.2.1.a; C-34.2.1.a; C-34.2.1.b).
- f. Action: Execute get_results for 25% of the hits (using the QueryId returned in step e, above) three times.
- Results: For each get_results iteration, QueryResults are returned (for 25% of total hits), which contains an individual QueryHit for each of the query hits. The returned attributes are in character form and those in the QueryHit correspond with the names in the QueryResults.
- Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g)
- g. Action: Execute point_query 4 from Table E-10.1.
- Results: A BadQuerySyntax exception is thrown by the server and gracefully handled by the client.
- Verification: This can be confirmed by the receipt and handling of the exception by the client. (C-33.2.2.a; C-34.2.2a)
- h. Action: Execute point_query 5 from Table E-10.1.
- Results: A BadQuerySyntax exception is thrown by the server and gracefully handled by the client.
- Verification: This can be confirmed by the receipt and handling of the exception by the client. (C-33.2.2.b; C-34.2.2a)
- i. Action: Execute point_query 6 from Table E-10.1.

- Results: A BadCoord exception is thrown by the server and gracefully handled by the client.
- Verification: This can be confirmed by the receipt and handling of the exception by the client. (C-33.2.2.g; C-34.2.2f)
- j. Action: Execute get_results for 1 of the hits (using the QueryId returned in step a, above).
- Results: QueryResults are returned, which contains the QueryHit for the hit selected above. All returned attributes are in character form. The attributes in the QueryHit and QueryResults are in the same order.
- Verification: This can be confirmed by examining returned QueryHitList for information and values contained therein. (C-35.2.1.a; C-35.2.1.b; C-35.2.1.c; C-35.2.1.d; C-35.2.1.e; C-36.2.1.a; C-36.2.1.b; C-36.2.1.c; C-36.2.1.e; C-36.2.1.f; C-36.2.1.g)
- k. Action: Execute a client close.
- Results: Server closes connection from client.
- Verification: No exceptions are raised. (C-19.2.1.a; C-20.2.1.a)
- l. Action: Execute a client open.
- Results: Client provides valid open_criteria containing user identity and password. Server opens connection with from client upon receipt of valid user identity and password.
- Verification: No exceptions are raised. (C-17.2.1a, C-18.2.1a)
- m. Action: Execute get_results for all remaining hits noted on QueryIds in steps a and e, above.
- Results: Exception thrown by server and gracefully handled by the client as no hits are accessible from previous session's QueryId.

Verification: This can be confirmed by the return of BadQueryId exception. (C-35.2.2.a; C-36.2.2.a)

n. Action: Execute get_results for the QueryId returned in step d, above.

Results: Exception thrown by server and gracefully handled by the client as no hits are accessible from previous session's QueryId.

Verification: This can be confirmed by the return of BadQueryId exception. (C-35.2.2.a; C-36.2.2.a)

o. Action: Execute a client close.

Results: Server closes connection from client.

Verification: No exceptions are raised. (C-19.2.1.a; C-20.2.1.a)

E-10.4 Post-conditions. None.

E-11 Scenario 11. Persistent Queries.

E-11.1 Focus Area. This scenario primarily covers persistent queries. Queries are posted on the profile and notification object, queries are listed, results are retrieved and freed, and queries are removed. Lastly, some exceptions are exercised.

E-11.2 Preconditions

- a. Server has been loaded with control images and control image metadata that will provide matches for the queries listed in Table E-11.1.
- b. Connection between client and Profile and Notification server has been opened.
- c. No standing queries exist for this client.

E-11.3 Scenario Conduct. A minimum of 5 queries will be performed in this scenario. Table E-11.1 lists these such queries.

Table E-11.1 - Persistent Queries

Persistent Queries		
Query Number	Number of Results Retrieved	Results Freed
This cell contains the Boolean Expression		
This cell contains any Geographic Definition		
This cell contain a list of the ResultAttributes		
Query 1	25% 25%	Yes
Boolean Expression is TBD		
Geographic Definition is TBD		
The ResultAttributes are: TBD		
Query 2	25% 25%	Yes
Boolean Expression is TBD		

Geographic Definition is TBD		
The ResultAttributes are: TBD		
Query 3	25% 25%	Yes
Boolean Expression is TBD		
Geographic Definition is TBD		
The ResultAttributes are: TBD		
Query 4	25% 25%	Yes
Boolean Expression is TBD		
Geographic Definition is TBD		
The ResultAttributes are: TBD		
Query5	25% 25%	Yes
Boolean Expression is TBD		
Geographic Definition is TBD		
The ResultAttributes are: TBD		

a. Action: Client request a list of the standing queries.

Results: No query statuses are returned.

Verification: Client notifies user of no standing queries. (Criteria: C-43.2.1.a, C-44.2.1.a)

b. Action: Client post queries from Table E-11.1. Set BrowseImageReturned to FALSE. Then requests listing of the standing queries. Note all returned QueryIds.

Results: The queries are posted in the server and a listing is returned to the client. All query statuses are new. Any correlation between the QueryId and details of the query are maintained by the client.

Verification: The client lists the queries shown in Table E-11.1 (Criteria: C-23.2.1, C-23.2.3a, C-23.2.3i, C-39.2.1a, C-39.2.1b, C-39.2.1c, C-39.2.1d, C-40.2.1a, C-40.2.1b, C-40.2.1c, C-40.2.1d, C-43.2.1, C-44.2.1)

c. Action: Retrieve the first 25% of each of the query results.

Results: The client displays the returned attributes.

Verification: The returned results must meet the query based on the control data in the catalog. (Criteria: C-35.2.1a, C-35.2.1b, C-35.2.1c, C-35.2.1d, C-35.2.1e, C-36.2.1a, C-36.2.1b, C-36.2.1c, C-36.2.1e, C-36.2.1f, C-36.2.1g)

d. Action: Request listing of the standing queries.

Results: A listing of the standing queries are returned to the client. The query statuses are now 75% new. Any correlation between the QueryId and details of the query are maintained by the client.

Verification: The client lists the queries shown in Table E-11.1. (Criteria: C-39.2.1a, C-39.2.1b, C-39.2.1c, C-39.2.1d, C-40.2.1a, C-40.2.1b, C-40.2.1c, C-40.2.1d, C-43.2.1, C-44.2.1)

e. Action: Close the connection to the PN server. Create new products TBD in the library and check its completion.

Results: The connection to the server is closed. New products are added to the library.

Verification: The client who created the product shows the completion status as COMPLETE. (Criteria: C-19.2.1a, C-20.2.1a, C-7.2.1a, C-8.2.1a, C-3.2.1b, C-3.2.1d, C-3.2.1j, C-4.2.1b, C-4.2.1d, C-4.2.1j)

f. Action: Open the connection with the PN server and request listing of the standing queries.

Results: A listing of the standing queries are returned to the client. The new products from the above step are shown. Any

correlation between the QueryId and details of the query are maintained by the client.

Verification: The client lists the queries shown in Table E-11.1 (Criteria: C-17.2.1a, C-17.2.1b, C-18.2.1a, C-17.2.1b, C-39.2.1e, C-40.2.1e, C-43.2.1, C-44.2.1)

- g. Action: Free the results from the standing queries from Table E-11.1. and request listing of the standing queries.

Results: The previously retrieved results are deleted. A listing of the standing queries are returned to the client. Any correlation between the QueryId and details of the query are maintained by the client.

Verification: The client lists the queries shown in Table E-11.1 (Criteria: C-41.2.1, C-42.2.1, C-43.2.1, C-44.2.1)

- h. Action: Retrieve the first 25% of each of the QueryResults.

Results: The client displays the returned attributes. The deleted attributes are not returned.

Verification: The returned results must meet the query based on the control data in the catalog. (Criteria: C-35.2.1a, C-35.2.1b, C-35.2.1c, C-35.2.1d, C-35.2.1e, C-36.2.1a, C-36.2.1b, C-36.2.1c, C-36.2.1e, C-36.2.1f, C-36.2.1g, C-41.2.1, C-42.2.1)

- i. Action: Remove standing query 5 from Table E-11.1. and request listing of the standing queries.

Results: A listing of the standing queries are returned to the client. The removed query (query 5) is no longer shown. Any correlation between the QueryId and details of the query are maintained by the client.

Verification: The client lists the queries numbered 1 to 4 shown in Table E-11.1 (Criteria: C-45.2.1, C-46.2.1, C-43.2.1, C-44.2.1)

- j. Action: Close then reopen the connection with the PN server.
Request listing of the standing queries.
- Results: A listing of the standing queries is returned to the client.
The queries numbered 1 to 4 are returned. Any
correlation between the QueryId and details of the query
are maintained by the client.
- Verification: The client lists the queries numbered 1 to 4 shown in
Table E-11.1. (Criteria: C-17.2.1, C-18.2.1, C-19.2.1a,
C-20.2.1a, C-39.2.1, C-40.2.1, C-43.2.1, C-44.2.1)
- k. Action: Remove standing queries 1 to 4 from Table E-11.1 and
request listing of the standing queries.
- Results: Standing queries are removed. There are no longer any
standing queries.
- Verification: No standing queries are returned. (Criteria: C-39.2.1e, C-
40-2.1e, C-45.2.1, C-46.2.1, C-43.2.1, C-44.2.1)
- l. Action: Select free_results using QueryId TBD returned in step b,
above.
- Results: The exception BadQueryId is thrown since the query has
been removed.
- Verification: The client notifies the user of the exception. (Criteria: C-
41.2.2a, C-42.2.2a)
- m. Action: Select remove_query using QueryId TBD returned in step
b, above.
- Results: The exception BadQueryId is thrown since the query has
been removed.
- Verification: The client notifies the user of the exception. (Criteria: C-
45.2.2a, C-46.2.2a)

E-11.4 Post-conditions. Remove products created in step e from the library.

E-12 Scenario 12. Automatic Notification and Retrieval

E-12.1 Focus Area. This scenario primarily covers the automatic notification and transmission of new image products. User profiles are posted on the PNF object, new products are created, and the clients are notified. Lastly, some exceptions are exercised.

E-12.2 Preconditions

a. Server has been loaded with control images and control image metadata that will provide matches for the queries listed in Table E-12.1.

b. Connection between client and Profile and Notification server has been opened and no standing queries exist for this client.

E-12.3 Scenario Conduct. A minimum of 6 queries, in varying degrees of complexity, will be performed in this scenario. Table E-12.1 lists all such queries.

Table E-12.1 - Persistent Queries

Persistent Queries		
Query Number	Number of Results Retrieved	Results Freed
This cell contains the Boolean Expression		
This cell contains any Geographic Definition		
This cell contain a list of the ResultAttributes		
Query 1 (email)	1	No
Boolean Expression is TBD		
Geographic Definition is TBD		
The ResultAttributes are: TBD		
Query 2 (objref.)	1	No
Boolean Expression is TBD		
Geographic Definition is TBD		

The ResultAttributes are: TBD		
Query 3 (email & objref.)	1	No
Boolean Expression is TBD		
Geographic Definition is TBD		
The ResultAttributes are: TBD		
Query 4 (exceptions)	N/A	Yes
Boolean Expression is TBD		
Geographic Definition is TBD		
The ResultAttributes are: TBD		

- a. Action: Client post queries from Table E-12.1. Set BrowseImageReturned to FALSE. Then request listing of the standing queries.

Results: The queries are posted in the server and a listing containing only the queries shown in Table E-12.1 are returned to the client. All query statuses are new. Any correlation between the QueryId and details of the query are maintained by the client.

Verification: The client lists the queries shown in Table E-11.1. (Criteria: C-23.2.1, C-23.2.3a, C-23.2.3b, C-23.2.3i, C-39.2.1a, C-39.2.1b, C-39.2.1c, C-39.2.1d, C-40.2.1a, C-40.2.1b, C-40.2.1c, C-40.2.1d, C-43.2.1, C-44.2.1)

- b. Action: Register the QueryId from query 1 in Table E-12.1 for notification by email to address TBD. Create new product TBD in the library.

Results: The new product is added to the library and the client is notified by email of the new product.

Verification: The client receives an email indicating the new product is in the library. (Criteria: C-7.2.1a, C-8.2.1a, C-47.2.1b, C-48.2.1b)

- c. Action: Register the QueryId from query 2 in Table E-12.1 for notification by callback to object reference TBD. Create new product TBD in the library.
- Results: The new product is added to the library and the client is notified by callback of the new product.
- Verification: The client notifies the user that the new product is in the library. The query results displayed by the client. (Criteria: C-7.2.1a, C-8.2.1a, C-47.2.1a, C-48.2.1a, C-51.2.1, C-52.2.1)
- d. Action: Register the QueryId from query 3 in Table E-12.1 for notification by callback to object reference TBD and by email to address TBD. Create new product TBD in the library.
- Results: The new product is added to the library and the client is notified by callback and email of the new product.
- Verification: The client receives an email indicating the new product is in the library. The client notifies the user that the new product is in the library. The query results displayed by the client. (Criteria: C-7.2.1a, C-8.2.1a, C-47.2.1, C-48.2.1, C-51.2.1, C-52.2.1)
- e. Action: Register the QueryId from query 4 in Table E-12.1 for notification by email and use an invalid email_address.
- Results: The exception BadEmailAddress is thrown since the email address is invalid.
- Verification: The client notifies the user of the exception. (Criteria: C-47.2.2b, C-48.2.2b)
- f. Action: Register the QueryId from query 4 in Table E-12.1 for notification by callback and use an invalid object reference TBD.
- Results: The exception INV_OBJREF is thrown since the provided callback object reference is invalid.

Verification: The client notifies the user of the exception. (Criteria: C-47.2.2d, C-48.2.2d)

- g. Action: Register the QueryId from query 4 in Table E-12.1 for notification and do not specify any email address or callback object reference.

Results: The exception BAD_PARAM is thrown since the neither the email address nor the object reference are supplied.

Verification: The client notifies the user of the exception. (Criteria: C-47.2.2c, C-48.2.2c, 48.2.1c)

- h. Action: Remove all the QueryIds from the queries in Table E-12.1. Then use that QueryId for notification by email to address TBD.

Results: The exception BadQueryId is thrown since the query has been removed.

Verification: The client notifies the user of the exception. (Criteria: C-45.2.1, C-46.2.1, C-47.2.2a, C-48.2.2a)

E-12.4 **Post-conditions.** Remove products created in steps b, c, d from the library.

E-13 Scenario 13. Boolean Query Syntax

E-13.1 Focus Area. This scenario covers both client and server handling of the Boolean Query Syntax. Client queries are made on the catalog server in various degrees of complexity and types and lists of matches are returned. The results returned are evaluated to ensure that proper matches were made on each of the respective queries.

E-13.2 Preconditions

a. Server has been loaded with control images and control image metadata that will provide matches for the queries listed in Table E-13.1.

b. Connection between client and Catalog Access server has been opened.

E-13.3 Scenario Conduct. A minimum of 26 queries, in varying degrees of complexity and types, will be performed in this scenario. Table E-13.1 lists all such queries.

Table E-13.1 - Boolean Query Syntax

Relation Expressions	Criteria D-55.2.1
1. " attrib = num "	a3, b1, c1
2. " attrib < > num "	a3, b1, c1
3. " attrib > = num "	a3, b1, c1
4. " attrib < = num "	a3, b1, c1
5. " attrib > num "	a3, b1, c1
6. " attrib < num "	a3, b1, c1
7. " attrib like > 'const' "	a3, b1, c2
8. " attrib not like > 'const' "	a3, b1, c2
9. " attrib like > '%const' "	a3, b1, c2, c3
10. " attrib not like 'const%' "	a3, b1, c2, c3

Sum Expressions	
11. " (attrib1 like 'const1' OR attrib1 like 'const2') "	a2, a3, b2, c2
12. " (attrib1 = num1 OR attrib1 = num2) "	a2, a3, b, c1, c2
15. " (attrib1 like '%const1' OR attrib1 like 'const2%')"	a2, a3, b2, c2, c3
Product Expressions	
16. " attrib1 like 'const1' AND attrib2 like 'const2' "	a1, a3, b2, c2
17. " attrib1 = num AND attrib2 like 'const' "	a1, a3, b, c1, c2
18. " attrib1 < > num AND attrib2 not like 'const' "	a1, a3, b, c1, c2
19. " attrib1 < > num AND attrib2 like 'const' "	a1, a3, b, c1, c2
20. " attrib1 not like '%const1' AND attrib2 not like 'const2%' "	a1, a3, b2, c2, c3
21. " attrib1 = num AND (attrib2 like 'const1' OR attrib2 like 'const2') "	a, b, c1, c2
24. " attrib1 like 'const1' AND (attrib2 < num1 OR attrib2 > num2) "	a, b, c1, c2
25. " attrib1 like '%const1' AND (attrib2 like '%const2' OR attrib2 like 'const3%') "	a, b2, c2, c3
26. " (attrib1 = num1 OR attrib1 = num2) AND (attrib2 like '%const1' OR attrib2 like 'const2%')"	a, b, c

a. Action: Set the parameter BrowseImageReturned to FALSE.

Results: The retrieved results will not contain the browse images.

Verification: No exceptions are thrown. (Criteria: C-23.2.1, C-23.2.3i, C-24.2.1, C-24.2.3i)

b. Action: Execute steps c-d for each query in Table E-13.1.

c. Action: Set the parameter ResultAttributes to the attributes used in the query string.

Results: The retrieved results will contain requested attributes.

Verification: No exceptions are thrown. (Criteria: C-23.2.1, C-23.2.3a, C-24.2.1, C-24.2.3a)

d. Action: Client submit boolean_query using query syntax in Table E-13.1 and retrieve results.

Results: The query results are displayed by the client. Only the records that meet the query criteria are returned and no exceptions are thrown.

Verification: The returned records are compared against the control data within the library. (Criteria: C-27.2.1, C-27.2.3a, C-28.2.1, C-28.2.3a, C-35.2.1a, C-35.2.1b, C-35.2.1c, C-35.2.1d, C-36.2.1a, C-36.2.1b, C-36.2.1c, C-36.2.1e, C-36.2.1f)

E-13.4 Post-conditions. None.